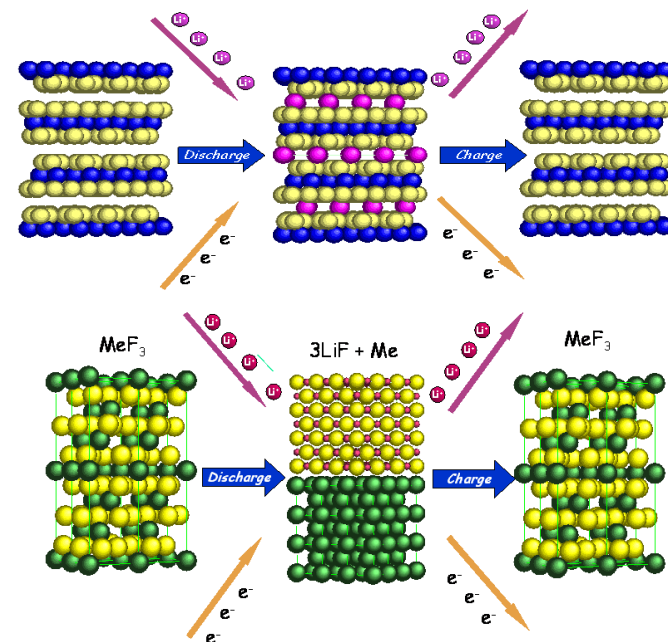




Summary statement: A fundamental understanding of how key electrode reactions occur, and how they can be controlled will be developed, so as to identify critical structural and physical properties that are vital to improving battery performance; this information will be used to optimize and design new electrode materials.



RESEARCH PLAN AND DIRECTIONS

The processes that occur in batteries are complex, spanning a wide range of time and length scales. The assembled team of experimentalists and theorists will make use of, and develop new spectroscopy, scattering, imaging and theoretical methodologies to determine how electrodes function in real time, as batteries are cycled.